

IN THE CLAIMS

This listing of the claim will replace all prior versions and listings of claim in the present application.

Listing of Claims

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Listing of Claims

Claim 1 (canceled).

2. (new) A graphics drawing device, comprising:

a data storage unit in which graphics data relating to two dimensional graphics are stored in relation to pixel groups;

a data extracting unit which extracts designated graphics data from the data storage unit based on image information of the pixel groups corresponding to a plurality of polygon graphics;

a graphics data producing unit which produces graphics data according to the image information if the drawing of a pixel has not been completed;

a drawing unit which draws the graphics data produced by the graphics data producing unit on the pixel designated by the data storage unit;

a graphics list storage unit which stores a graphics list containing image information of the pixel groups corresponding to the plurality of polygon graphics each having a different depth;

a sorting unit which sorts graphics groups in the graphics list stored in the graphics list storage unit according to the depth information relating to the depth of the respective graphics;

wherein said data extracting unit includes means for extracting designated graphics data from said data storage unit based on the image information relating to the sorted graphics by the sorting unit;

a region judgment unit which judges, based on the image information, whether or not the drawing regions of polygons belonging to the graphics sorted by the sorting unit are contained in a drawing region of a polygon belonging to graphics having a higher order of sorting;

a deleting unit which deletes the graphics judged as being contained in such a drawing region by the region judgment unit from the graphics list;

wherein said graphics data producing unit includes means for producing graphics data relating to the drawing regions of polygons judged as not contained in such a drawing region by the region judgment unit of every one of the pixels according to the image information;

a rectangle providing unit which respectively provides circumscribed rectangles for graphics of the groups belonging to the graphics sorted by the sorting unit and inscribed rectangles for graphics of the groups, while correlating both circumscribed and un-circumscribed rectangles to the drawing regions,

wherein said region judgment unit judges whether or not a circumscribed rectangle relating to the graphics in the group sorted among the rectangles provided

by the rectangle providing unit is hidden by an inscribed rectangle belonging to a graphics in a group having a higher order of sorting, and

wherein said drawing unit accesses said data storage unit to draw graphics data corresponding to rectangles not hidden by other rectangles and said does not access said data storage unit to draw graphics data corresponding to rectangles hidden by other rectangles.

3. (new) A graphics drawing method, comprising the steps of:

storing in a data storage unit graphics data relating to two dimensional graphics in relation to pixel groups;

extracting, by a data extracting unit, designated graphics data from the data storage unit based on image information of the pixel groups corresponding to a plurality of polygon graphics;

producing, by a graphics data producing unit, graphics data according to the image information if the drawing of a pixel has not been completed;

drawing, by a drawing unit, the graphics data produced by the graphics data producing unit on the pixel designated by the data storage unit;

storing, by a graphics list storage unit, a graphics list containing image information of the pixel groups corresponding to the plurality of polygon graphics each having a different depth;

sorting, by a sorting unit, graphics groups in the graphics list stored in the graphics list storage unit according to the depth information relating to the depth of the respective graphics;

extracting, by said data extracting unit, designated graphics data from said data storage unit based on the image information relating to the sorted graphics by the sorting unit;

judging, by a region judgment unit, based on the image information, whether or not the drawing regions of polygons belonging to the graphics sorted by the sorting unit are contained in a drawing region of a polygon belonging to graphics having a higher order of sorting;

deleting, by a deleting unit, the graphics judged as being contained in such a drawing region by the region judgment unit from the graphics list;

producing, by said graphics data producing unit, graphics data relating to the drawing regions of polygons judged as not contained in such a drawing region by the region judgment unit of every one of the pixels according to the image information;

providing, by a rectangle providing unit circumscribed rectangles for graphics of the groups belonging to the graphics sorted by the sorting unit and inscribed rectangles for graphics of the groups, while correlating both circumscribed and uncircumscribed rectangles to the drawing regions;

judging, by said region judgment unit, whether or not a circumscribed rectangle relating to the graphics in the group sorted among the rectangles provided by the rectangle providing unit is hidden by an inscribed rectangle belonging to a graphics in a group having a higher order of sorting; and

accessing, by said drawing unit, said data storage unit to draw graphics data corresponding to rectangles not hidden by other rectangles and not accessing said

data storage unit to draw graphics data corresponding to rectangles hidden by other rectangles.